Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	CC Docket No. 94-102
To Ensure Compatibility with	)	RM-8143
Enhanced 911 Emergency Calling Systems	)	

MOTOROLA, INC. REPLY TO COMMENTS ON FURTHER NOTICE OF PROPOSED RULEMAKING

Motorola, Inc. ("Motorola") herewith replies to the comments filed on the *First Report and Order and Further Notice of Proposed Rulemaking* in the above-captioned proceeding.[1] As discussed below, Motorola supports the position of commenters in this proceeding that the goals outlined in the *Further Notice* can be achieved through market forces without resorting to regulatory mandates. Indeed, Motorola submits that a market-based solution to wireless enhanced 911 ("E911") development would be a more sound approach as a matter of public policy in light of the potential for the proposed regulations to stifle technical innovation, to require investment in unnecessary or unwanted capabilities, and to distort competition in the provision of wireless services.

Introduction

The *First Report and Order* in this proceeding adopted a number of requirements for land mobile carriers to ensure compatibility with E911 systems being deployed by Public

[1]Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102 (July 26, 1996) ("*Further Notice*" or "*First Report and Order*").

Safety Answering Points ("PSAPs"). The *Further Notice* in this proceeding seeks comment on extending the policies of the *First Report and Order* not only to ensure continuing compatibility between wireless networks and E911 systems, but also to ensure that PSAPs achieve the full benefits of new technology as it emerges. Specifically, the *Further Notice* requests comment on:

- requiring ALI within 40 feet 90 percent of the time using latitude, longitude, and altitude;
- setting specifications for latency and updating ALI information;
- requiring all PSAPs to accept non-code identified calls; and
- requiring wireless carriers to service calls from any mobile unit.

As discussed below, Motorola believes the record developed in this proceeding supports achieving the goals identified by the Commission through the interaction of market forces, as suggested by both TIA and CTIA. By allowing market forces, rather than regulatory mandates, to ensure the continued development of E911 technology, the Commission can spur innovation and best promote the policies of the Communications Act. Motorola also discusses below commenters' opposition, for technical and policy reasons, to imposing "universal" accessibility requirements on land mobile service providers.

1. The Record Supports Adopting a Market-Driven Approach to Ensure the Continued Development of Wireless E911 Technologies

In both the comments on the *Further Notice* and in the associated Petitions for Reconsideration of the *First Report and Order*, filers provided extensive documentation on the

technological limitations of automatic location identification ("ALI") systems.[2] Despite its technical concerns, Motorola, in its recently filed reply to comments on the pending Petitions for Reconsideration in this docket, supported the existing requirement to offer ALI information locating a caller within a radius of 125 meters. However, Motorola also urged the Commission, as suggested by TIA, to allow industry to develop an accuracy metric that is independent of environmental factors. As shown in the record, ALI system performance is heavily dependent upon local operating conditions, including the density of structures in the area, the geometry of the receiver base stations, the multipath environment, and other factors. Mandating an accuracy limit on a national basis that does not take into account local propagation conditions is neither technically justified nor sound public policy.[3]

Now, the *Further Notice* proposes to adopt a more stringent accuracy requirement for ALI systems, incorporating three dimensions,[4] before two-dimensional ALI is even implemented. Specifically, the *Further Notice* requests comment on achieving accuracy of 40 feet, 90 percent of the time. Even KSI, the only manufacturer continuing to maintain that the requirement in the *First Report and Order* is technically feasible, has stated that it "did not and

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[2]*See, e.g.*, Associated RT Comments at 19-23; E.F. Johnson Comments at 3-4; Ericsson Comments at 2-4; GTE Service Corp. Comments at 3; Harris Comments at 4; Lucent Comments at 3; Nokia Comments at 2-4; Omnipoint Comments at 1-2; Raytheon Comments at 1-2; TIA Comments at 5-9.

[3]Indeed, even KSI has argued that a different standard may be warranted for some environments. KSI Comments at 4.

[4]Even APCO has noted that vertical data may be difficult to obtain in a cost-effective manner, and supports eliminating the requirement for rural areas. APCO Comments at 4; *see also* Harris Comments at 4 & n.2.

does not aver that implementing its system, or any other system, can economically provide locational accuracy to within a radius of 40 feet, 90 percent of the time, in all environments."[5] Other manufacturers and commenters have been more direct -- most have argued that 125 meter ALI with 66 percent accuracy is technologically challenging and that 40 foot, three-dimensional ALI with 90 percent accuracy is well beyond the predictable scope of technological advancements or, at a minimum, premature.[6] Commenters have also made clear that moving from the Phase I ALI requirement to the accuracy suggested in the *Further Notice* is not an upgrade; the technological improvements contemplated will likely require deployment of entirely new systems replacing Phase I systems.[7]

On balance, Motorola agrees with the solution proposed by both TIA and CTIA for a market-based approach to ALI development.[8] This solution eliminates concerns regarding both the advisability of setting national ALI accuracy standards and predicting technological trends. CTIA, for example, notes that "PSAPs and other emergency service authorities will be best positioned to determine the proper balance between the costs and benefits associated with implementing different ALI technologies."[9] As CTIA further notes, "market forces should

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[5]KSI Comments at 5.

[6]Airtouch Comments at 3-4; AMTA Comments at 4-5; American Portable Telecom Comments at 2 n.4; CTIA Comments at 3; Ericsson Comments at 2-4; GTE Service Corp. Comments at 4; Lucent Comments at 3; Nextel Comments at 3; Nokia Comments at 2-4; Omnipoint Comments at 1-2; PCIA Comments at 4-8; Raytheon Comments at 1-2; Southwestern Bell Mobile Systems Comments at 5-6; TIA Comments at 5-9.

[7]Bell Atlantic/NYNEX Mobile Comments at 3.

[8]TIA Comments at 5-9; CTIA Comments at 2-6; *see also* 360° Comm. Comments at 5.

[9]CTIA Comments at 5.

spur additional improvements as vendors seek to gain an advantage in the marketplace," and therefore that "a flexible environment will best serve the needs of the public, the PSAPs, and the wireless industry."[10]

Motorola also notes that adopting a market-based approach to enhanced ALI technology would also rectify potential regulatory problems with compliance and curative measures associated with the existing, and proposed, mandates. Specifically, under the existing rule, a carrier has no means for ensuring that a manufacturer's system, as deployed in its market, will perform to the specifications of the Commission's rules. Moreover, because the local multipath environment can change significantly, a carrier that installs a compliant system may find that it is no longer in compliance as traffic patterns are re-routed or new construction occurs. Adopting a market-based approach, on the other hand, provides the purchaser of the system (*i.e.*, the PSAP) with direct relief from the ALI system vendor by placing them in privity of contract. This solution thus creates regulatory stability by limiting the potential for carriers to violate the Commission's rules for reasons beyond their control while assuring PSAPs are provided with a system that fully meets their needs and budgets.

Thus, Motorola believes that the market can and should guide future accuracy improvements for ALI. As noted throughout the record in this proceeding, ALI is predominantly a local concern. It is the local environment that controls the accuracy of a system, as deployed in the field. It is the local taxpayers that will bear the burden of paying for enhanced ALI systems and should examine the costs and benefits of deploying advanced

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[10] *Id.* at 6.

ALI technology.[11] It is the local PSAP who is in the best position to determine the costs and benefits of deploying enhanced ALI systems compared to, for example, repairing fire trucks or purchasing state-of-the-art lifesaving equipment. It is the local PSAPs that are uniquely able to define requirements related to ALI updating and latency, or whether there are other features they wish to have incorporated in an advanced ALI system.[12] In this local environment, national ALI accuracy standards do not appear either beneficial or warranted.

2. Any Obligations Regarding Non-Code Identified Calls Should Be Consistent with the Limitations Noted in the Pending Petitions for Reconsideration

The *Further Notice* also requests comment on requiring all PSAPs to accept non-code identified calls in the future. At present, PSAPs are permitted to elect whether they desire wireless carriers to forward non-code identified calls. Motorola notes, however, that numerous petitions for reconsideration and supporting filings have discussed the technical problems inherent in processing non-code identified calls. Motorola itself filed replies supporting TIA's request that the Commission modify the definitions adopted in the *First Report and Order* and clarify the obligations of carriers when they cannot provide call-back numbers at all, as well as their obligations when they cannot provide reliable call-back numbers. To the extent that the *Further Notice* seeks to continue the code/non-code identification dichotomy, Motorola believes modifications are warranted to ensure that the

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[11] *C.f.* AMTA Comments at 5-6; Associated RT Comments at 10-11; GTE Service Corp. Comments at 4; KSI Comments at 5-6.

[12] Associated RT Comments at 17-18; Lucent Comments at 6; PCIA Comments at 8-9.

approach taken is consistent with the technical capabilities of mobile systems discussed in the reconsideration proceeding.

3. The Requirement To Provide Service Across All Land Mobile Technologies Has Been Rejected By the Commenters in this Proceeding on Technical and Policy Grounds

The *Further Notice* also seeks comment on expanding the scope of the E911 obligations to require mobile handsets to be capable of accessing different networks, regardless of the air interface employed or the spectrum band of operation. Motorola believes that the record evidence in this proceeding demonstrates that such a requirement is technically infeasible, contrary to Commission policies promoting diversity of wireless service, and counter to the public interest. Motorola thus urges the Commission to limit E911 access requirements for mobile units to compatible systems only.

As TIA and other commenters have observed, supporting access to any type of wireless system from a consumer mobile unit is not technically feasible.[13] In particular, the existence of dual mode PCS/cellular handsets and PCS handsets that allow use of different types of air interfaces does not mean that a "universal" handset can be created or is desirable. Dual mode handsets, for example, may be designed to take advantage of similarities between two systems, so as to avoid incorporating two wholly different front ends and radios, or may in the case of cellular/PCS handsets be designed in a manner that balances the increased cost of incorporating two different radios as a trade-off to exploit the benefits of cellular coverage.

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[13]AMTA Comments at 6-7; E.F. Johnson Comments at 6; Ericsson Comments at 5; Omnipoint Comments at 4-6; TIA Comments at 12-16.

The multiple radio elements that would be required for a universal handset, however, are not now commercially justifiable in terms of cost, size, or battery life.[14] Indeed, even APCO does not currently advocate multi-mode equipment requirement due to cost factors.[15] Moreover, new radio protocols and formats are being deployed every day, diversity the Commission has encouraged by explicitly refraining from setting common air interface standards for PCS and by encouraging the offering of alternative cellular technologies.[16] Therefore, even if a universal handset could be created, it is unlikely that such a handset would be able to access new systems coming on line in the future. Moreover, such a requirement would require the replacement of 40 million existing phones and would interfere with new product roll-out.[17]

Indeed, the mere existence of dual mode units illustrates that, where the market justifies the cost versus coverage trade-off, access will be enabled. As PCS roll-out continues, PCS carriers will seek to achieve compatibility with nearby systems and execute roaming agreements to supplement their scope of operations. At the same time, these networks will gradually be built out to reach areas where consumers demand service.[18] This process, Motorola believes, should be governed by market forces, not regulatory mandate. Moreover,

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[14]Ericsson Comments at 5; Omnipoint Comments at 7-9; Southwestern Bell Mobile Systems Comments at 7.

[15]APCO Comments at 6.

[16]GTE Service Corp. Comments at 7.

[17]AT&T Wireless Services Comments at 6.

[18]PCIA Comments at 11-13.

the problem of coverage the *Further Notice* seeks to address is temporary in nature. As such, it does not warrant a costly and permanent regulatory response.

In this regard, Motorola also agrees with those commenters noting technical difficulties with mobile units being required to select the "strongest signal" when placing an E911 call. As observed in the record, the fact that one systems' control channel signal is stronger does not necessarily imply that the quality of the voice channel is "better." The system with the "weaker" control channel, for example, may be digital or may incorporate more densely packed microcells that would provide a qualitatively better voice signal to the PSAP. Moreover, there are significant localized variations in the control channel signal strength due to multipath and ducting that could cause anomalous readings. Furthermore, the user could be in motion at the time a call is placed, and the strength of the control channel at the time of call initiation may not be relevant to the voice channel quality a short distance away. On balance, Motorola agrees with those commenters arguing that mobile units should not be required to seek out the strongest control channel prior to completing an E911 call.[19]

Conclusion

Motorola believes that the adoption of extensive regulatory mandates is unnecessary to ensure the further development of E911 capabilities and access. This is especially true where, as in this case, the deployment of enhanced ALI systems, if justified and desired on a local basis, can be guided by the interaction of natural market forces. Similarly, the extent of E911

[19]*See, e.g.*, AT&T Wireless Services Comments at 4-5; Bell Atlantic/NYNEX Mobile Comments at 5-6; Rural Telecommunications Group Comments at 7-8.

access capabilities built into commercial handsets is an area where consumers desiring extended coverage can exert their collective power to influence the expansion of PCS and other mobile radio systems to achieve that goal without regulatory intervention. In effect, adoption of extensive regulations to force these issues will result in stifled technology, competitive distortions, implementation of excess or unnecessary capabilities borne by local taxpayers, and little actual benefit to the public. Motorola urges the Commission to follow the suggestions of TIA and CTIA and allow market forces to guide the enhancement of E911 technology.

Respectfully submitted,

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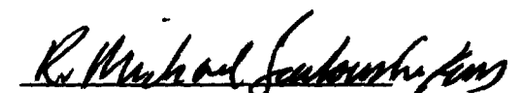
By: 

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